

CLAIMS

The invention claimed is:

1. An imaging system comprising:
at least a first antenna unit configured to transmit toward and receive from a subject in a subject position, electromagnetic radiation in a frequency range of about 200 MHz to about 1 THz, from at least one position spaced from the subject position, the antenna unit pivoting about a pivot axis, whereby each antenna unit scans across at least a portion of the subject position as the antenna unit pivots about the pivot axis;
a transceiver configured to operate each antenna unit and to produce an output representative of the received radiation; and
a processor adapted to convert the transceiver output into image data representative of an image of the subject.
2. A system according to claim 1, in which each antenna unit pivots about a fixed pivot axis.
3. A system according to claim 1, in which the pivot axis passes through the antenna unit.
4. A system according to claim 1, in which the pivot axis is spaced from the antenna unit.

5. A system according to claim 4, in which the pivot axis is between the antenna unit and the subject position.

6. A system according to claim 4, in which the antenna unit is between the pivot axis and the subject position.

7. A system according to claim 1, in which the at least one antenna unit includes a plurality of such antenna units distributed at spaced positions around a subject in a subject position, each antenna unit being adapted to pivot about a respective pivot axis, whereby each antenna unit is adapted to scan across at least a corresponding portion of the subject position as each antenna unit pivots about the respective pivot axis.

8. A system according to claim 7, in which each antenna unit pivots about a fixed pivot axis.

9. A system according to claim 8, in which each antenna unit is part of an array of antenna units at each spaced position, and each array of antenna units pivots about the respective pivot axis.

10. An imaging system comprising:

a frame extending around a subject position;

a plurality of antenna arrays fixedly mounted to the frame at locations distributed around and spaced from the subject position, each array including at least one antenna unit configured to transmit toward and receive from a subject in the subject position, electromagnetic radiation in a frequency range of about 200 MHz to about 1 THz, from a position spaced from the subject position, each antenna array transmitting electromagnetic radiation toward a portion of a subject located in the subject position that does not receive electromagnetic radiation from at least one other antenna array;

a transceiver configured to operate each antenna array and to produce an output representative of the received radiation; and

a processor adapted to convert the transceiver output into image data representative of an image of the subject.

11. A system according to claim 10, in which the plurality of arrays includes at least three arrays spaced around the subject position appropriate to direct electromagnetic radiation toward the entire circumference of a subject located in the subject position.

12. A method of imaging comprising:
- transmitting toward a subject in a subject position having a center, electromagnetic radiation in a frequency range of about 200 MHz to about 1 THz, from at least one position;
 - scanning the transmitted electromagnetic radiation across at least a portion of the subject position from the at least one position;
 - receiving from the subject reflected electromagnetic radiation;
 - producing an output representative of the received radiation; and
 - converting the output into image data representative of an image of the subject.
13. A method according to claim 12, in which transmitting radiation includes transmitting radiation from at least one antenna unit, and scanning the radiation includes pivoting each antenna unit.
14. A method according to claim 13, in which pivoting each antenna unit includes pivoting each antenna unit about a fixed pivot axis.
15. A method according to claim 13, in which pivoting each antenna unit includes pivoting each antenna unit about a pivot axis that passes through the antenna unit.

16. A method according to claim 13, in which pivoting each antenna unit includes pivoting each antenna unit about a pivot axis that is spaced from the antenna unit.

17. A method according to claim 16, in which pivoting each antenna unit includes pivoting each antenna unit about a pivot axis located between the antenna unit and the subject position.

18. A method according to claim 16, in which pivoting each antenna unit includes pivoting each antenna unit about a pivot axis such that the antenna unit is located between the pivot axis and the subject position.

19. A method according to claim 12, in which scanning the transmitted electromagnetic radiation includes scanning the transmitted radiation from spaced positions distributed around the subject position.

20. A method according to claim 19, in which transmitting radiation includes transmitting radiation from a plurality of antenna units distributed at spaced positions around a subject position, and scanning the radiation includes pivoting each antenna unit.

21. A method according to claim 20, in which pivoting each antenna unit includes pivoting each antenna unit about a fixed pivot axis.

22. A method according to claim 21, in which each antenna unit is part of an array of antenna units at each spaced position, and pivoting each antenna unit includes pivoting each array of antenna units about the respective pivot axis.

23. A method according to claim 22, in which transmitting radiation includes transmitting from each antenna array electromagnetic radiation toward a portion of a subject located in the subject position that does not receive electromagnetic radiation from at least one other antenna array.

24. A method according to claim 23, in which transmitting radiation includes transmitting radiation from arrays located at at least three positions spaced around the subject position appropriate to direct electromagnetic radiation toward the entire circumference of a subject located in the subject position.

25. A system of imaging comprising:

means for transmitting toward a subject in a subject position having a center, electromagnetic radiation in a frequency range of about 200 MHz to about 1 THz, from at least one position;

means for scanning the transmitted electromagnetic radiation across at least a portion of the subject position from the at least one position;

means for receiving from the subject reflected electromagnetic radiation;

means for producing an output representative of the received radiation; and

means for converting the output into image data representative of an image of the subject.

26. A system according to claim 25, in which the means for transmitting radiation is further for transmitting radiation from at least one antenna unit, and the means for scanning the radiation is further for pivoting each antenna unit.

27. A system according to claim 26, in which the means for pivoting each antenna unit is further for pivoting each antenna unit about a fixed pivot axis.

28. A system according to claim 26, in which the means for pivoting each antenna unit is further for pivoting each antenna unit about a pivot axis that passes through the antenna unit.

29. A system according to claim 26, in which the means for pivoting each antenna unit is further for pivoting each antenna unit about a pivot axis that is spaced from the antenna unit.

30. A system according to claim 26, in which the means for pivoting each antenna unit is further for pivoting each antenna unit about a pivot axis located between the antenna unit and the subject position.

31. A system according to claim 26, in which the means for pivoting each antenna unit is further for pivoting each antenna unit about a pivot axis such that the antenna unit is located between the pivot axis and the subject position.